(724)850-5600



February 10, 2017

Smita Sumbaly Weston Solutions, Inc 1090 King Georges Post Road Edison, NJ 08837

RE: Project: Case # RFP 403D

Pace Project No.: 30207597

Dear Smita Sumbaly:

Enclosed are the analytical results for sample(s) received by the laboratory on December 22, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

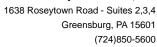
If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures







CERTIFICATIONS

Project: Case # RFP 403D

Pace Project No.: 30207597

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

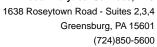
Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282 South Dakota Certification Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C Wisconsin Certification

Wyoming Certification #: 8TMS-L





SAMPLE SUMMARY

Project: Case # RFP 403D

Pace Project No.: 30207597

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30207597001	A5-LCP01-01	Solid	12/15/16 14:30	12/22/16 13:00
30207597002	A5-LCP02-01	Solid	12/15/16 14:35	12/22/16 13:00
30207597003	A5-LCP03-01	Solid	12/15/16 14:40	12/22/16 13:00
30207597004	A5-LCP04-01	Solid	12/15/16 14:45	12/22/16 13:00
30207597005	A5-LCP05-01	Solid	12/15/16 14:50	12/22/16 13:00
30207597006	A5-LCP06-01	Solid	12/15/16 14:55	12/22/16 13:00
30207597007	A5-LCP07-01	Solid	12/15/16 15:00	12/22/16 13:00
30207597008	A5-LCP08-01	Solid	12/15/16 15:05	12/22/16 13:00
30207597009	A5-LCP09-01	Solid	12/15/16 15:10	12/22/16 13:00
30207597010	A5-LCP10-01	Solid	12/15/16 15:15	12/22/16 13:00

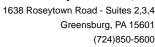


SAMPLE ANALYTE COUNT

Project: Case # RFP 403D

Pace Project No.: 30207597

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30207597001	A5-LCP01-01	HSL-300	LAL	6
30207597002	A5-LCP02-01	HSL-300	LAL	6
30207597003	A5-LCP03-01	HSL-300	LAL	6
30207597004	A5-LCP04-01	HSL-300	LAL	6
30207597005	A5-LCP05-01	HSL-300	LAL	6
30207597006	A5-LCP06-01	HSL-300	LAL	6
30207597007	A5-LCP07-01	HSL-300	LAL	6
30207597008	A5-LCP08-01	HSL-300	LAL	6
30207597009	A5-LCP09-01	HSL-300	LAL	6
30207597010	A5-LCP10-01	HSL-300	LAL	6





PROJECT NARRATIVE

Project: Case # RFP 403D

Pace Project No.: 30207597

Method: HSL-300

Description: HSL300(AS) Actinides
Client: Weston Solutions, Inc. (NJ)
Date: February 10, 2017

General Information:

10 samples were analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

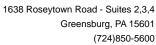
Additional Comments:

Analyte Comments:

QC Batch: 248115

N2: The lab does not hold NELAC/TNI accreditation for this parameter.

- A5-LCP01-01 (Lab ID: 30207597001)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP02-01 (Lab ID: 30207597002)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP03-01 (Lab ID: 30207597003)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP04-01 (Lab ID: 30207597004)
 - Thorium-228
 - Thorium-230





PROJECT NARRATIVE

Project: Case # RFP 403D

Pace Project No.: 30207597

Method: HSL-300

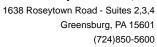
Description:HSL300(AS) ActinidesClient:Weston Solutions, Inc. (NJ)Date:February 10, 2017

Analyte Comments:

QC Batch: 248115

N2: The lab does not hold NELAC/TNI accreditation for this parameter.

- A5-LCP04-01 (Lab ID: 30207597004)
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP05-01 (Lab ID: 30207597005)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP06-01 (Lab ID: 30207597006)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP07-01 (Lab ID: 30207597007)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP08-01 (Lab ID: 30207597008)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP09-01 (Lab ID: 30207597009)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- A5-LCP10-01 (Lab ID: 30207597010)
 - Thorium-228
 - Thorium-230





PROJECT NARRATIVE

Project: Case # RFP 403D

Pace Project No.: 30207597

Method: HSL-300

Description:HSL300(AS) ActinidesClient:Weston Solutions, Inc. (NJ)Date:February 10, 2017

Analyte Comments:

QC Batch: 248115

N2: The lab does not hold NELAC/TNI accreditation for this parameter.

- A5-LCP10-01 (Lab ID: 30207597010)
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- BLANK (Lab ID: 1220310)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236

This data package has been reviewed for quality and completeness and is approved for release.



Project: Case # RFP 403D

Pace Project No.: 30207597

Sample: A5-LCP01-01 Lab ID: 30207597001 Collected: 12/15/16 14:30 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	1.45 ± 0.407 (0.208) C:NA T:77%	pCi/g	02/09/17 06:28	14274-82-9	N2
Thorium-230	HSL-300	1.11 ± 0.336 (0.179) C:NA T:77%	pCi/g	02/09/17 06:28	14269-63-7	N2
Thorium-232	HSL-300	0.927 ± 0.295 (0.050) C:NA T:77%	pCi/g	02/09/17 06:28	7440-29-1	N2
U-233/234	HSL-300	0.993 ± 0.292 (0.209) C:NA T:101%	pCi/g	02/08/17 15:21		N2
U-235/236	HSL-300	0.096 ± 0.092 (0.127) C:NA T:101%	pCi/g	02/08/17 15:21		N2
Uranium-238	HSL-300	1.05 ± 0.294 (0.122) C:NA T:101%	pCi/g	02/08/17 15:21		N2

Sample: A5-LCP02-01 Lab ID: 30207597002 Collected: 12/15/16 14:35 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	0.919 ± 0.324 (0.304) C:NA T:75%	pCi/g	02/09/17 06:28	14274-82-9	N2
Thorium-230	HSL-300	0.912 ± 0.297 (0.146) C:NA T:75%	pCi/g	02/09/17 06:28	14269-63-7	N2
Thorium-232	HSL-300	0.962 ± 0.305 (0.093) C:NA T:75%	pCi/g	02/09/17 06:28	7440-29-1	N2
U-233/234	HSL-300	0.898 ± 0.287 (0.159) C:NA T:90%	pCi/g	02/08/17 15:21		N2
U-235/236	HSL-300	0.001 ± 0.082 (0.165) C:NA T:90%	pCi/g	02/08/17 15:21		N2
Uranium-238	HSL-300	1.13 ± 0.331 (0.159) C:NA T:90%	pCi/g	02/08/17 15:21		N2

Sample: A5-LCP03-01 Lab ID: 30207597003 Collected: 12/15/16 14:40 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	1.33 ± 0.392 (0.207) C:NA T:71%	pCi/g	02/09/17 06:28	14274-82-9	N2
Thorium-230	HSL-300	1.03 ± 0.332 (0.238) C:NA T:71%	pCi/g	02/09/17 06:28	14269-63-7	N2
Thorium-232	HSL-300	0.985 ± 0.313 (0.114) C:NA T:71%	pCi/g	02/09/17 06:28	7440-29-1	N2
U-233/234	HSL-300	0.596 ± 0.212 (0.151) C:NA T:98%	pCi/g	02/08/17 15:21		N2
U-235/236	HSL-300	0.077 ± 0.076 (0.052) C:NA T:98%	pCi/g	02/08/17 15:21		N2
Uranium-238	HSL-300	0.754 ± 0.239 (0.098) C:NA T:98%	pCi/g	02/08/17 15:21		N2



Project: Case # RFP 403D

Pace Project No.: 30207597

Sample: A5-LCP04-01 Lab ID: 30207597004 Collected: 12/15/16 14:45 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	1.01 ± 0.349 (0.308) C:NA T:77%	pCi/g	02/09/17 06:28	14274-82-9	N2
Thorium-230	HSL-300	1.05 ± 0.335 (0.166) C:NA T:77%	pCi/g	02/09/17 06:28	14269-63-7	N2
Thorium-232	HSL-300	1.03 ± 0.328 (0.119) C:NA T:77%	pCi/g	02/09/17 06:28	7440-29-1	N2
U-233/234	HSL-300	0.897 ± 0.272 (0.171) C:NA T:89%	pCi/g	02/08/17 15:21		N2
U-235/236	HSL-300	0.209 ± 0.130 (0.097) C:NA T:89%	pCi/g	02/08/17 15:21		N2
Uranium-238	HSL-300	0.691 ± 0.226 (0.088) C:NA T:89%	pCi/g	02/08/17 15:21		N2

Sample: A5-LCP05-01 Lab ID: 30207597005 Collected: 12/15/16 14:50 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	1.30 ± 0.407 (0.285)	pCi/g	02/09/17 09:25	14274-82-9	N2
Thorium-230	HSL-300	C:NA T:70% 1.28 ± 0.386 (0.185)	pCi/g	02/09/17 09:25	14269-63-7	N2
Thorium-232	HSL-300	C:NA T:70% 1.15 ± 0.356 (0.057)	pCi/g	02/09/17 09:25	7440-29-1	N2
U-233/234	HSL-300	C:NA T:70% 0.790 ± 0.273 (0.226)	pCi/g	02/08/17 15:21		N2
U-235/236	HSL-300	C:NA T:100% 0.067 ± 0.081 (0.061)	pCi/g	02/08/17 15:21		N2
Uranium-238	HSL-300	C:NA T:100% 0.730 ± 0.249 (0.102)	pCi/g	02/08/17 15:21		N2
		C:NA T:100%				

 Sample: A5-LCP06-01
 Lab ID: 30207597006
 Collected: 12/15/16 14:55
 Received: 12/22/16 13:00
 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	1.42 ± 0.407 (0.258) C:NA T:73%	pCi/g	02/09/17 09:25	14274-82-9	N2
Thorium-230	HSL-300	0.997 ± 0.311 (0.142) C:NA T:73%	pCi/g	02/09/17 09:25	14269-63-7	N2
Thorium-232	HSL-300	0.842 ± 0.278 (0.091) C:NA T:73%	pCi/g	02/09/17 09:25	7440-29-1	N2
U-233/234	HSL-300	0.886 ± 0.261 (0.143) C:NA T:98%	pCi/g	02/09/17 14:13		N2
U-235/236	HSL-300	0.127 ± 0.098 (0.091) C:NA T:98%	pCi/g	02/09/17 14:13		N2
Uranium-238	HSL-300	1.00 ± 0.280 (0.093) C:NA T:98%	pCi/g	02/09/17 14:13		N2



Project: Case # RFP 403D

Pace Project No.: 30207597

Sample: A5-LCP07-01 Lab ID: 30207597007 Collected: 12/15/16 15:00 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	1.01 ± 0.324 (0.241) C:NA T:80%	pCi/g	02/09/17 09:25	14274-82-9	N2
Thorium-230	HSL-300	0.773 ± 0.261 (0.123) C:NA T:80%	pCi/g	02/09/17 09:25	14269-63-7	N2
Thorium-232	HSL-300	0.743 ± 0.253 (0.087) C:NA T:80%	pCi/g	02/09/17 09:25	7440-29-1	N2
U-233/234	HSL-300	1.01 ± 0.288 (0.133) C:NA T:98%	pCi/g	02/09/17 14:13		N2
U-235/236	HSL-300	0.052 ± 0.068 (0.094) C:NA T:98%	pCi/g	02/09/17 14:13		N2
Uranium-238	HSL-300	1.00 ± 0.283 (0.105) C:NA T:98%	pCi/g	02/09/17 14:13		N2

Sample: A5-LCP08-01 Lab ID: 30207597008 Collected: 12/15/16 15:05 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	0.817 ± 0.280 (0.229) C:NA T:88%	pCi/g	02/09/17 09:25	14274-82-9	N2
Thorium-230	HSL-300	0.847 ± 0.271 (0.136) C:NA T:88%	pCi/g	02/09/17 09:25	14269-63-7	N2
Thorium-232	HSL-300	0.704 ± 0.239 (0.045) C:NA T:88%	pCi/g	02/09/17 09:25	7440-29-1	N2
U-233/234	HSL-300	0.914 ± 0.286 (0.159) C:NA T:84%	pCi/g	02/09/17 14:13		N2
U-235/236	HSL-300	0.097 ± 0.104 (0.164) C:NA T:84%	pCi/g	02/09/17 14:13		N2
Uranium-238	HSL-300	0.908 ± 0.286 (0.168) C:NA T:84%	pCi/g	02/09/17 14:13		N2

Sample: A5-LCP09-01 Lab ID: 30207597009 Collected: 12/15/16 15:10 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	0.998 ± 0.325 (0.246) C:NA T:79%	pCi/g	02/09/17 09:25	14274-82-9	N2
Thorium-230	HSL-300	0.809 ± 0.284 (0.248) C:NA T:79%	pCi/g	02/09/17 09:25	14269-63-7	N2
Thorium-232	HSL-300	0.928 ± 0.293 (0.089) C:NA T:79%	pCi/g	02/09/17 09:25	7440-29-1	N2
U-233/234	HSL-300	1.14 ± 0.315 (0.139) C:NA T:94%	pCi/g	02/09/17 14:13		N2
U-235/236	HSL-300	0.159 ± 0.113 (0.054) C:NA T:94%	pCi/g	02/09/17 14:13		N2
Uranium-238	HSL-300	0.849 ± 0.259 (0.076) C:NA T:94%	pCi/g	02/09/17 14:13		N2



Project: Case # RFP 403D

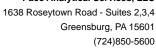
Pace Project No.: 30207597

Sample: A5-LCP10-01 Lab ID: 30207597010 Collected: 12/15/16 15:15 Received: 12/22/16 13:00 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "wet-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-228	HSL-300	1.18 ± 0.384 (0.306) C:NA T:70%	pCi/g	02/09/17 09:25	14274-82-9	N2
Thorium-230	HSL-300	0.999 ± 0.330 (0.204) C:NA T:70%	pCi/g	02/09/17 09:25	14269-63-7	N2
Thorium-232	HSL-300	0.998 ± 0.324 (0.122) C:NA T:70%	pCi/g	02/09/17 09:25	7440-29-1	N2
U-233/234	HSL-300	1.07 ± 0.306 (0.207) C:NA T:93%	pCi/g	02/09/17 14:13		N2
U-235/236	HSL-300	0.159 ± 0.116 (0.127) C:NA T:93%	pCi/g	02/09/17 14:13		N2
Uranium-238	HSL-300	1.37 ± 0.350 (0.098) C:NA T:93%	pCi/g	02/09/17 14:13		N2





QUALITY CONTROL - RADIOCHEMISTRY

Project: Case # RFP 403D

Pace Project No.: 30207597

QC Batch: 248115 Analysis Method: HSL-300

QC Batch Method: HSL-300 Analysis Description: HSL300(AS) Actinides

Associated Lab Samples: 30207597001, 30207597002, 30207597003, 30207597004, 30207597005, 30207597006, 30207597007,

30207597008, 30207597009, 30207597010

METHOD BLANK: 1220310 Matrix: Solid

Associated Lab Samples: 30207597001, 30207597002, 30207597003, 30207597004, 30207597005, 30207597006, 30207597007,

30207597008, 30207597009, 30207597010

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Thorium-228	0.152 ± 0.122 (0.172) C:NA T:81%	pCi/g	02/09/17 05:21	N2
Thorium-230	-0.064 ± 0.070 (0.239) C:NA T:81%	pCi/g	02/09/17 05:21	N2
Thorium-232	0.034 ± 0.070 (0.096) C:NA T:81%	pCi/g	02/09/17 05:21	N2
U-233/234	0.005 ± 0.045 (0.109) C:NA T:99%	pCi/g	02/08/17 15:21	N2
U-235/236	0.013 ± 0.059 (0.129) C:NA T:99%	pCi/g	02/08/17 15:21	N2
Uranium-238	0.007 ± 0.045 (0.075) C:NA T:99%	pCi/g	02/08/17 15:21	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

(724)850-5600



QUALIFIERS

Project: Case # RFP 403D

Pace Project No.: 30207597

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 02/10/2017 03:43 PM

N2 The lab does not hold NELAC/TNI accreditation for this parameter.